

CLAIMS

Please cancel claims 1 - 29 as presented in the Annexes to the International Preliminary Examination Report.

Please add the following new claims:

30. Thermoplastic composition comprising:

a thermoplastic elastomer mixture containing at least a styrenic elastomer and a polyolefin resin, in which the thermoplastic elastomer mixture further comprises:

- a not cross-linked thermoplastic SIS elastomer containing less than 20% by weight bound styrene, and
- a thermoplastic elastomer which is at least partially cross-linked, the weight ratio of the not cross-linked thermoplastic SIS elastomer / thermoplastic elastomer at least partially cross-linked being comprised between 1:10 and 5:1.

31. The composition of claim 30, in which the not cross-linked SIS elastomer has a molecular weight comprised between 150,000 and 275,000.

32. The composition of claim 30, in which the not cross-linked SIS elastomer has a molecular weight comprised between 200,000 and 240,000.

33. The composition of claim 30, in which the weight ratio of the not cross-linked thermoplastic SIS elastomer / thermoplastic elastomer at least partially not cross-linked and polyolefin resin is comprised between 1:5 and 1:1.

34. The composition of claim 30, in which the polyolefin resin is selected from the group consisting of polyethylene, polypropylene, and mixtures of polyethylene and polypropylene.

35. The composition of claim 30, in which the polyolefin resin and the at least partially cross-linked thermoplastic elastomer forms a premixture containing not cross-linked thermoplastic elastomer and partially cross-linked thermoplastic elastomer.

36. The composition of claim 30, in which the at least partially cross-linked thermoplastic elastomer has a cross-linking rate of more than 20%.

37. The composition of claim 30, in which the at least partially cross-linked thermoplastic elastomer has a cross-linking rate comprised between 25% and 75%.

38. The composition of claim 30, in which the composition comprises as the thermoplastic elastomer and polyolefin resin, a mixture of polyolefin resin and SIS elastomer, the said mixture containing at least 40% by weight SIS elastomer, whereby the said mixture contains at least 20% by weight at least partially cross-linked SIS elastomer.

39. The composition of claim 30, further comprising a not cross-linked thermoplastic SIS elastomer and a thermoplastic elastomer which has been partially cross-linked in the presence of polyolefin, the weight ratio of not cross-linked thermoplastic SIS elastomer / thermoplastic elastomer which has been partly cross-linked in the presence of a polyolefin being comprised between 1:6 and 1:1.

40. The composition of claim 30, further comprising a polyolefin resin, a partly cross-linked thermoplastic elastomer and a not cross-linked thermoplastic SIS elastomer, the weight content of partially cross-linked elastomer with respect to the weight of polyolefin resin, partially

cross-linked thermoplastic elastomer and not cross-linked thermoplastic SIS elastomer being comprised between 20% and 40%, while the weight content of not cross-linked thermoplastic SIS elastomer with respect to the weight of polyolefin resin, partially cross-linked thermoplastic elastomer and not cross-linked thermoplastic SIS elastomer being comprised between 15% and 50%.

41. The composition of claim 30, further comprising at least 20% by weight of a not cross-linked thermoplastic elastomer different from the not cross-linked thermoplastic SIS elastomer.

42. The composition of claim 41, in which the weight ratio of the not cross-linked thermoplastic elastomer different from the thermoplastic SIS elastomer / not cross-linked SIS thermoplastic elastomer is lower than 1:2.

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43. The composition of claim 30, further comprising at least 20% by weight of a not cross-linked thermoplastic elastomer different from the not cross-linked thermoplastic elastomer, the weight ratio of the not cross-linked thermoplastic elastomer different from the thermoplastic SIS elastomer / not cross-linked SIS thermoplastic elastomer being lower than 1:10.

44. The composition of claim 30, in which the polyolefin resin and the thermoplastic elastomer(s) is a substantially homogeneous mixture of a substantially homogeneous premixture of a polyolefin and a partly cross-linked thermoplastic elastomer, with a not cross-linked thermoplastic SIS elastomer.

45. The composition of claim 30, in which a silane is used for the partial cross-linking of the thermoplastic elastomer.

46. The composition of claim 30, further comprising an amount of not cross-linked elastomer sufficient for ensuring a stability to a treatment selected from the group consisting

of heat treatment at a temperature of at least 121 °C of at least 100 minutes,  $\gamma$  irradiation of at least 20 KGray, and combinations thereof.

47. The composition of claim 30, further comprising at least an additive selected from the group consisting of dyes, pigments and mixtures thereof.

48. The composition of claim 30, which comprises less than 0.5% by weight halide salt.

49. The composition of claim 48, which comprises less than 0.2% by weight halide salt.

50. Sealing means for a container or vial, at least a part of the said sealing means being made of a composition comprising a thermoplastic elastomer mixture containing at least a styrenic elastomer and a polyolefin resin, in which the thermoplastic elastomer mixture comprises:

- A 20
- a not cross-linked thermoplastic SIS elastomer containing less than 20% by weight bound styrene, and
  - a thermoplastic elastomer which is at least partially cross-linked, the weight ratio of the not cross-linked thermoplastic SIS elastomer / thermoplastic elastomer at least partially cross-linked being comprised between 1:10 and 5:1.

51. The sealing means of claim 50, in which the not cross-linked SIS elastomer has a molecular weight comprised between 150,000 and 275,000.

52. The sealing means of claim 50, in which the not cross-linked SIS elastomer has a molecular weight comprised between 200,000 and 240,000.

53. The sealing means of claim 50, in which the polyolefin resin is selected from the group consisting of polyethylene, polypropylene, and mixtures of polyethylene and polypropylene.

54. The sealing means of claim 50, in which the polyolefin resin and the at least partially cross-linked thermoplastic elastomer forms a premixture containing not cross-linked thermoplastic elastomer and partially cross-linked thermoplastic elastomer.

55. The sealing means of claim 50, in which the composition further comprises as thermoplastic elastomer and polyolefin resin, a mixture of polyolefin resin and SIS elastomer, the said mixture containing at least 40% by weight SIS elastomer, whereby the said mixture contains at least 20% by weight at least partially cross-linked SIS elastomer.

A<sup>20</sup> 56. The sealing means of claim 50, in which the composition further comprises a not cross-linked thermoplastic SIS elastomer and a thermoplastic elastomer which has been partially cross-linked in the presence of polyolefin, the weight ratio of not cross-linked thermoplastic SIS elastomer / thermoplastic elastomer which has been partly cross-linked in the presence of a polyolefin being comprised between 1:6 and 1:1.

57. The sealing means of claim 50, in which the composition further comprises a polyolefin resin, a partly cross-linked thermoplastic elastomer and a not cross-linked thermoplastic SIS elastomer, the weight content of partially cross-linked elastomer with respect to the weight of polyolefin resin, partially cross-linked thermoplastic elastomer and not cross-linked thermoplastic SIS elastomer being comprised between 20% and 40%, while the weight content of not cross-linked thermoplastic SIS elastomer with respect to the weight of polyolefin resin, partially cross-linked

thermoplastic elastomer and not cross-linked thermoplastic SIS elastomer being comprised between 15% and 50%.

58. The sealing means of claim 50, in which the composition further comprises at least 20% by weight of a not cross-linked thermoplastic elastomer different from the not cross-linked thermoplastic SIS elastomer.

59. The sealing means of claim 58, in which the weight ratio of the not cross-linked thermoplastic elastomer different from the thermoplastic SIS elastomer / not cross-linked SIS thermoplastic elastomer is lower than 1:2.

60. The sealing means of claim 50, in which the polyolefin resin and the thermoplastic elastomer(s) is a substantially homogeneous mixture of a substantially homogeneous premixture of a polyolefin and a partly cross-linked thermoplastic elastomer, with a not cross-linked thermoplastic SIS elastomer.

61. The sealing means of claim 50, in which a silane is used for the partial cross-linking of the thermoplastic elastomer.

62. The sealing means of claim 50, in which the composition comprises an amount of not cross-linked elastomer sufficient for ensuring a stability to a treatment selected from the group consisting of heat treatment at a temperature of at least 121 °C during at least 100 minutes,  $\gamma$  irradiation of at least 20 KGray, and combinations thereof.

63. The sealing means of claim 50, in which the composition further comprises at least an additive selected from the group consisting of dyes, pigments and mixtures thereof.

64. The sealing means of claim 50, in which the composition comprises less than 0.5% by weight halide salt.

65. The sealing means of claim 64, in which the composition comprises less than 0.2% by weight halide salt.

~~66.~~ In combination:

a pharmaceutical container or vial defining an inner volume and a surface;

sealing means for sealing said pharmaceutical container or vial, the said sealing means

comprising a body, at least a part of the body being made of a composition

comprising a thermoplastic elastomer mixture containing at least a styrenic elastomer

and a polyolefin resin, in which the thermoplastic elastomer mixture comprises :

-- a not cross-linked thermoplastic SIS elastomer containing less than 20% by weight bound styrene, and

-- a thermoplastic elastomer which is at least partially cross-linked, the weight

ratio of the not cross-linked thermoplastic SIS elastomer / thermoplastic elastomer at least partially cross-linked being comprised between 1:10 and 5:1,

*120* the said body being associated to a layer contacting the surface of the vial or container when the sealing means closes the said container or vial.

67. The combination of claim 66, in which the polyolefin resin of the composition is selected from the group consisting of polyethylene, polypropylene, copolymer of ethylene-polypropylene and mixtures thereof, while the said layer is at least partly made of a polyolefin resin selected from the group consisting of polyethylene, polypropylene, copolymer of ethylene-polypropylene and mixtures thereof.

68. An element selected from the group consisting of film, bag, cloth, protecting cloth, tube, cap, and cap for protecting a needle of a syringe, said element comprising at least a layer

made of a composition comprising a thermoplastic elastomer mixture containing at least a styrenic elastomer and a polyolefin resin, in which the thermoplastic elastomer mixture comprises:

- a not cross-linked thermoplastic SIS elastomer containing less than 20% by weight bound styrene, and
- a thermoplastic elastomer which is at least partially cross-linked,

the weight ratio of the not cross-linked thermoplastic SIS elastomer / thermoplastic elastomer at least partially cross-linked being comprised between 1:10 and 5:1.

69. The element of claim 68, in which the polyolefin resin of the composition is selected from the group consisting of polyethylene, polypropylene, copolymer of ethylene-polypropylene and mixtures thereof, while the element further comprises at least one layer consisting essentially of a polyolefin resin selected from the group consisting of polyethylene, polypropylene, copolymer of ethylene-propylene and mixtures thereof.

70. The element of claim 68, which further comprises a second layer made of said composition.

~~71.~~ Process for the manufacture of an article from a composition comprising a thermoplastic elastomer mixture containing at least a styrenic elastomer and a polyolefin resin in which the thermoplastic elastomer mixture comprises:

- a not cross-linked thermoplastic SIS elastomer containing less than 20% by weight bound styrene, and
- a thermoplastic elastomer which is at least partially cross-linked,

the weight ratio of the not cross-linked thermoplastic SIS elastomer / thermoplastic elastomer at least partially cross-linked being comprised between 1:10 and